What is claimed is :

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1. A system for measuring core power of a circuit on a printed-circuit board (PCB) comprising:

a first circuit;

a power plane feeding said first circuit,

a power strip for providing power to said power plane disposed in said PCB connected to said power plane and having at least two vias;

a calibration strip having a predetermined width and being disposed in said PCB, said calibration strip having at least two vias for measuring a voltage drop; and

a second circuit configured to measure a first voltage drop across said at least two vias of said power strip as a first voltage and a second voltage drop across said at least two vias of said calibration strip as a second voltage and to perform a power calculation by calculating a power being fed to said first circuit based on said first voltage and said second voltage.

2. The system according to claim 1, wherein said power strip and said calibration strip comprise a same type of material and are disposed in said PCB simultaneously during the manufacturing process.

3. The system according to claim 2, wherein said power strip and said calibration strip comprise substantially pure copper.

4. The system according to claim 1, wherein said calibration strip and said power strip are of a predetermined length and said power calculation is further based on said predetermined length.

5. The system according to claim 3, wherein said power strip and said calibration strip are of a predetermined length and said power calculation is further based on said predetermined length.

6. The system according to claim 1, wherein said power strip has a first predetermined length and width, and said calibration strip has a second predetermined length and width, and said power calculation is further based on said first predetermined length and width and said second predetermined length and width.

7. The system according to claim 3, wherein said power strip has a first predetermined length and width, and said calibration strip has a second predetermined length and width, and said power calculation is further based on said first predetermined length and width and said second predetermined length and width.

8. The system according to claim 1, wherein a first power supply is connected to said power strip and a second power supply is connected to

said calibration strip, said second power supply comprising a precision current supply.

9. The system according to claim 3, wherein a first power supply is connected to said power strip and a second power supply is connected to said calibration strip, said second power supply comprising a precision current supply.

10. The system according to claim 1, wherein said calibration strip is connected in series with a precision resistor.

11. The system according to claim 3, wherein said calibration strip is connecting in series with a precision resistor.

12. The system according to claim 1, wherein said second circuit further comprises:

a first operational amplifier configured to measure said first voltage;

a second operational amplifier configured to measure said second voltage; and

an analog to digital converter receiving said first and second voltages output from said first and second operational amplifiers respectively.

13. The system according to claim 3, wherein said second circuit further comprises:

a first operational amplifier configured to measure said first voltage;

a second operational amplifier configured to measure said second voltage; and

an analog to digital converter receiving said first and second voltages output from said first and second operational amplifiers respectively.

14. The system according to claim 1, wherein said second circuit further comprises:

a differencing circuit configured to measure said first voltage and said second voltage and produce a first signal and a second signal corresponding to said first voltage and said second voltage respectively;

a digital to analog converter configured to receive said first signal and said second signal from said differencing circuit and to convert said first signal and said second signal into a first digital signal and a second digital signal; and

a calculation circuit configured to receive said first and second digital signals and perform said power calculation.

15. The system according to claim 3, wherein said second circuit further comprises:

a differencing circuit configured to measure said first voltage and said second voltage and produce a first signal and a second signal corresponding to said first voltage and said second voltage respectively;

a digital to analog converter configured to receive said first signal and said second signal from said differencing circuit and to convert said first signal and said second signal into a first digital signal and a second digital signal; and

a calculation circuit configured to receive said first and second digital signals and perform said power calculation.

16. The system according to claim 14, wherein said calculation circuit comprises a computer processor.

17. The system according to claim 15, wherein said calculation circuit comprises a computer processor.

18. The system according to claim 5, wherein said second circuit is further configured to measure a temperature of said calibration strip and said power calculation is further based on said temperature.

19. The system according to claim 6, wherein said second circuit is further configured to measure a temperature of said calibration strip and said power calculation is further based on said temperature.

20. The system according to claim 1, wherein said calibration strip is disposed in a same proximity of said power strip on said PCB.

21. The system according to claim 3, wherein said calibration strip is disposed in a same proximity of said power strip on said PCB.

22. A system for measuring core power of a circuit on a printed circuit board (PCB) comprising:

a first circuit;

a power plane feeding said first circuit,

a power strip disposed in said PCB connecting said first power supply to said power plane and having at least two vias for measuring a voltage drop;

a second circuit configured to measure a first voltage drop across said power strip as a first voltage, a temperature of said power strip, and perform a power calculation by calculating the power being consumed by said first circuit based on said first voltage and said temperature.

23. The system according to claim 22, wherein said power strip comprises substantially pure copper.

24. The system according to claim 22, wherein said power strip has a known length, width and thickness, and said power calculation is further based on said known length, width and thickness.

25. The system according to claim 24, where said power strip is made of a known material having a resistivity and a thermal coefficient, and said power calculation is further based on said resistivity and said thermal coefficient.

26. The system according to claim 22, wherein said second circuit further comprises:

a differencing circuit configured to measure said first voltage and said second voltage and produce a first signal and a second signal corresponding to said first voltage and said second voltage respectively;

a digital to analog converter configured to receive said first signal and said second signal from said differencing circuit and to convert said first signal and said second signal into a first digital signal and a second digital signal; and

a CPU configured to receive said first and second digital signals and perform said power calculation.

27. A method for determining core power of a circuit on a printed circuit board (PCB) comprising the steps of:

disposing a power strip having a first predetermined length and width into said PCB between said power source during the manufacturing process;

disposing a calibration strip having a second predetermined length and width into said PCB during the manufacturing process;

attaching a second power supply to said calibration strip and grounding said power strip to form a current flow through said power strip;

measuring a first voltage drop across said power strip as a first voltage;

measuring a second voltage drop across said calibration strip as a second voltage; and

calculating said power to said circuit based on said first and second voltages, said first predetermined length and width and said second predetermined length and width.

28. The method of claim 27 further comprising the step of:

measuring the temperature of said calibration strip;

wherein said calculating step calculates said power further based on said temperature.

29. The method of claim 28 wherein said calibration strip is placed in close proximity to said power strip during said embedding step.

30. The method of claim 28 further comprising the step of:

disposing a calibration circuit on said PCB configured to perform said measurement and said calculation steps.

31. The method of claim 28 wherein said calculating step further comprises:

measuring and amplifying said first voltage;

measuring and amplifying said second voltage; and

converting said first and second voltages into first and second digital signals respectively.

32. The method of claim 28 wherein disposing a calibration circuit step further comprises:

disposing a differencing circuit on said PCB configured to measure said first voltage and said second voltage;

disposing a digital to analog converter on said PCB configured to convert said first voltage and said second voltage into a first digital signal and a second digital signal; and

disposing a calculation circuit on said PCB configured to receive said first and second digital signals and perform said calculation.

33. A system for measuring core power of a circuit on a printed circuit board (PCB) comprising:

a first circuit;

a power plane means feeding said first circuit,

a power strip means for providing power to said power plane disposed in said PCB connected said power plane and having at least two means for measuring a voltage drop;

a calibration strip means having a predetermined width disposed in said PCB, said calibration strip means having at least two means for measuring a voltage drop; and

a calculation means for measuring a first voltage drop across said power strip means as a first voltage and a second voltage drop across said calibration strip means as a second voltage and for performing a power calculation by calculating the power being fed to said first circuit based on said first voltage and said second voltage.

34. The system according to claim 33, wherein said power strip means and said calibration strip means comprise a same type of material and are disposed in said PCB simultaneously during the manufacturing process.

35. The system according to claim 34, wherein said power strip means and said calibration strip means comprise substantially pure copper.

36. The system according to claim 33, wherein said calibration strip means and said power strip means are of a predetermined length and said power calculation is further based on said predetermined length.

37. The system according to claim 35, wherein said power strip means and said calibration strip means are of a predetermined length and said power calculation is further based on said predetermined length.

38. The system according to claim 33, wherein said power strip means has a first predetermined length and width, and said calibration strip means has a second predetermined length and width, and said power calculation is further based on said first predetermined length and width and said second predetermined length and width.

39. The system according to claim 35, wherein said power strip means has a first predetermined length and width, and said calibration strip means has a second predetermined length and width, and said power calculation is further based on said first predetermined length and width and said second predetermined length and width.

40. The system according to claim 33, wherein a first power supply is connected to said power strip means and a second power supply is

connected to said calibration strip means, said second power supply comprising a precision current supply.

41. The system according to claim 35, wherein a first power supply is connected to said power strip means and a second power supply is connected to said calibration strip means, said second power supply comprising a precision current supply.

42. The system according to claim 33, wherein said power strip means is connected in series with a precision resistor and said second circuit measures a third voltage drop across said precision resistor as a third voltage and said power calculation is further based on said third voltage drop.

43. The system according to claim 35, wherein said power strip means is connecting in series with a precision resistor and said second circuit measures a voltage drop across said precision resistor as a third voltage and said power calculation is further based on said third voltage drop.

44. The system according to claim 33, wherein said calculating means further comprises:

a first operational amplifier means for measuring said first voltage;

a second operational amplifier means for measuring said second voltage; and

a digital to analog converter means for receiving said first and second voltages output from said first and second operational amplifiers and converting said first and second voltages to first and second digital signals respectively.

45. The system according to claim 36, wherein said calculating means further comprises:

a first operational amplifier means for measuring said first voltage;

a second operational amplifier means for measuring said second voltage; and

a digital to analog converter means for receiving said first and second voltages output from said first and second operational amplifiers and converting said first and second voltages to first and second digital signals respectively.

46. The system according to claim 33, wherein said calculating means further comprises:

a differencing means for measuring said first voltage and said second voltage and producing a first signal and a second signal corresponding to said first voltage and said second voltage respectively;

a digital to analog converter means for receiving said first signal and said second signal from said differencing circuit and for converting said first signal and said second signal into a first digital signal and a second digital signal; and

a processing means for receiving said first and second digital signals and performing said power calculation.

47. The system according to claim 36, wherein said calculating means further comprises:

a differencing means for measuring said first voltage and said second voltage and producing a first signal and a second signal corresponding to said first voltage and said second voltage respectively;

a digital to analog converter means for receiving said first signal and said second signal from said differencing circuit and for converting said first signal and said second signal into a first digital signal and a second digital signal; and

a processing means for receiving said first and second digital signals and performing said power calculation.

48. The system according to claim 37, wherein said calculating means is further configured to measure a temperature of said calibration strip means and said power calculation is further based on said temperature.

49. The system according to claim 38, wherein said calculating means is further configured to measure a temperature of said calibration strip means and said power calculation is further based on said temperature.

50. The system according to claim 33, wherein said calibration strip means is disposed in a same proximity of said power strip means on said PCB.

51. The system according to claim 36, wherein said calibration strip means is disposed in a same proximity of said power strip means on said PCB.

52. A system for measuring core power of a circuit on a printed circuit board (PCB) comprising:

a first circuit;

a power plane means for feeding said first circuit,

a power strip means disposed in said PCB for connecting said first power supply to said power plane and having at least two means for measuring a voltage drop;

a calculating means for measuring a first voltage drop across said power strip means as a first voltage, for measuring a temperature of said power strip means, and for performing a power calculation by calculating

the power being fed to said first circuit based on said first voltage and said temperature.

53. The system according to claim 52, wherein said power strip means comprises substantially pure copper.

54. The system according to claim 52, wherein said power strip means has a known length, width and thickness, and said power calculation is further based on said known length, width and thickness.

55. The system according to claim 54, where said power strip means is made of a known material having a resistivity and a thermal coefficient, and said power calculation is further based on said resistivity and said thermal coefficient.

56. The system according to claim 52, wherein said calculating means further comprises:

a differencing means for measuring said first voltage and said second voltage and producing a first signal and a second signal corresponding to said first voltage and said second voltage respectively;

a digital to analog converter means for receiving said first signal and said second signal from said differencing circuit and converting said

first signal and said second signal into a first digital signal and a second digital signal; and

a processing means for receiving said first and second digital signals and performing said power calculation.